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FIELD TRIP TO WEST-KALIMANTAN

MISSION REPORT

Identification OF SMALLHOLDER  
RUBBER AGROFORESTRY SYSTEMS:  
SUSTAINABLE ALTERNATIVES.

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Eric Penot : CIRAD-CP  
Hubert de Forresta : ORSTOM/ICRAF  
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**Subject of the field trip :**

to have an overview of the province through visiting the PKR-GK/GAPKINDO project and identify possible partners for SRAP project phase I (1994-1995) implementation : identification of the needs in term of surveys and on-farm-experimentation for both phase I and II.

**Location :**

West-Kalimantan : Pontianak, Singkawang, Sanggau and Sintang.

**Date of the mission :**

20th to 30th april 1994

**Experts :**

Eric Penot : CIRAD-CP, agro-economist, from 20th to 30th April

Hubert de Forresta : ORSTOM/ICRAF, botanist, from 23th to 30th April

Dennis Garrity : ICRAF, director ICRAF/Indonesia, from 20th to 26th April

A.F.S Budiman : GAPKINDO, director, from 20th to 23rd April

Michel Delabarre : CIRAD-CP, agronomist, from 20th to 30th April

**Output :**

Field trip mission report (this document).

Technical annex of on-farm trials methodology and trials protocoles. 4 types of on-farm-trials have been so far identified : RAS 1 to 4. In the following document, please, for RAS 1 to 4 , refer to the anex 1.

Technical annex for improved planting material production by smallholders.

Programme of activities for the phase I of the project in the province.

Identification of priorities in the project field of activities for the phase I and preparation of cost evaluation.

We would like to thank the West-Kalimantan Gapkindo staff for their technical support, in particular, Mr Leo Abam, as well as TCSDP and DISBUN staff for their support in the implementation of this field trip.

We also would like to thank the SFDP/GTZ project staff for their welcome in Sanggau and their interest.

The main objective of this report, beside the activities report, is to present the methodology of the SRAP project and the result of the priorities identified by the team in term of research, on-farm-experimentation and required surveys, after analysis in situ of the local situation.

For more details on different projects, SRDP, TCSDP, PKR-GK and SFDP/GTZ, we suggest the reader to refer to available reports and information.



## ACRONYMS

AARD	Agency for Agricultural Research and Development
AEZ	Agro-Ecological Zone
ANRPC	Association of Natural Rubber Producer Countries.
BPS	Balai Penelitian Sembawa, Rubber Research Center of Sembawa
CS	Clonal seedlings planting material.
CSAR	Center for Soil and Agroclimate Research, Bogor.
CIRAD	Centre de Coopération Internationale en Recherche Agronomique pour le Développement.
CIRAD-CP	CP = Cultures Pérennes = Tree Crop Department of CIRAD.
CFT	Clone Field Trial.
DISBUN	DINAS PERKEBUNAN (Ministry of Agriculture)
DGE	Directorate General of Estates (Ministry of Agriculture)
FSS	Farming System Survey
GAPKINDO	Union of Indonesian rubber industry.
IPARD	Indonesian Planters Association for Research and Development, Jakarta.
ICRAF	International Center for Research in Agroforestry.
IRRDB	International Rubber Research and Development Board.
IRRI	Rubber Research Institute of Indonesia, Sungei Putih.
or CRIR	Central Research Institute of Rubber
IRCA	Institut de Recherche sur le CAoutchouc (CIRAD).
Ladang	Slashed and burned plot for upland crops.
OFT	On-Farm-Trial
PCS	Polyclonal seedlings planting material.
PFMA	Participatory Forestry Management Area.
PPK	Pusat Penelitian Karet = IRRI
PPSP	Pusat Penelitian Sungei Putih, Rubber Research Center of Sungei Putih.
PKR-GK	West-Kalimantan GAPKINDO smallholder rubber development project.
PEPTE	Project for Replanting, Rehabilitation and Extension of Export crops.
PRI	Plasticity Retention Index.
RMP	Rubber Monospecific Plot
RAS	Rubber Agroforestry System
RRFS	Rubber Based Farming System
RCS	Rubber commodity system
Sawah	Irrigated rice plot.
SFDP	Social Forestry Development project (GTZ)
SRDP	Smallholder Rubber Development Project.
SNI	Indonesian National System for rubber specifications.
SIR	Standart Indonesian Rubber.
TCSDP	Tree Crop Smallholder Development Project.
TSR	Technically Specified Rubber.



# SRAP PROJECT

**FIELD TRIP TO WEST-KALIMANTAN**  
 GAPKINDO/CIRAD/ICRAF/ORSTOM team  
**SRAP PROJECT**  
 20th to 30 th April 1994



## FIELD TRIP REPORT

20 april 1994

Arrival in Pontianak.

Presentation of the GAPKINDO staff. Meeting with Mr Leo Abam, headman of GAPKINDO/Pontianak and Mr Nico.

**Meeting with GAPKINDO members in GAPKINDO office** (Rustan Indra and Dr Tjaw Tji Jong/New Kalbar Processor, Bambang Ngadimin/Sumber Djantin, Samuel Lieyardi and Sastra Wijaya/Sumber Alam, Chan Bon Chan and Lie Tjiauw Djin/Pt DT Hok Tong, Steve Sia/Ciat Usaha Dieng).

### **Presentation of the achievements of the PKR-GK project (3 reports available).**

This project was aimed to help some selected farmers to have access to rubber clones and to implement rubber plots with TCSDP standards and other clones than GT 1 which severely suffers from leaf diseases (*Colletotrichum*) and pink disease (*Corticium*). The idea of the province's governor who launched this programme in 1992 was that if nothing's done within several years, rubber may disappear, or severely decrease in term of cropping area and production, from the province or not be considered as a valuable crop due to inadequate choice of clones according to the diseases pressure in the province. A selection of clones should be tried by smallholders to identify those which are more suitable under the specific conditions of soils and climate of the province. The idea was also to increase the production of rubber in the province to permit the processors to fulfil their facilities.

Budwood gardens (2 in 2 ha) and nurseries (6 in 3 ha) have produced the required planting material. Clones have been distributed gratis.

As GAPKINDO can't operate such project by itself, being only an association of processors, DISBUN has been selected for implementation. 2200 hectares have been planted by smallholders : 600 ha in Sambas (North of the province), 900 ha in Pontianak, 200 ha in Sintang (Central East), 200 ha in Sanggau (Central) and 100 ha in Ketabang (South). The funding came from a 1992 levy of 15 rp/kg of exported rubber from the province ("replanting fund for rubber"). Due to several institutional problems, the fund have been stopped after one year. The total fund available for this project was 2 billions rupiah (1 million US \$). After the first year of planting, PKR-GK project farmers did not receive any further support (for comparison, SRDP/TCSDP farmers receive support up to production time).

Such operation, to raise a levy on rubber exportation, was technically possible in West-Kalimantan, due to its geographical position where the only outlet for rubber is Pontianak, at the river's mouth, and can be under control.

The selected technological package for this project was similar to that of SRDP/TCSDP. Clones, but also clonal seedlings (CS) and polyclonal seedlings (PCS)



from Sembawa have been provided to farmers. Each farmer received planting material for 1 ha. Complete reports of the project are available.

Some PKR-GK farmers have been visited during the field trip, as well as former nurseries and budwood gardens. It should be interesting to look with attention to the type of management the farmers applied to these clones in the frame of a general survey on the use of clones by non-project farmers ("clone use survey"). All situations have been encountered : PKR-GK farmers with PKR-GK plot only, with jungle rubber, with jungle rubber and SRDP plot....

It seems clearly that however 2200 ha have effectively been planted and the planting cost per hectare considered as reasonable, comparable to that of SRDP/TCSDP, the total cost of the project has been considered as relatively high. The expectations of GAPKINDO members do not seem to have been fully reached through such programme and the members will probably be reluctant to fund any other operation in the future without a clear idea of the output in term of rubber quantity and quality, in the very next future.

The institutional problem of raising such a fund, that normally should pass through official channel (BAPPENAS, then affected to the provincial treasury) explain why no further levy has been decided by the local provincial authority.

The available fund has been used for the planting of 2200 ha by smallholders with the following distribution : 75 % for planting, 10 % for administration and 15 % for plant protection.

In term of quality policy, no "raiyonisasi" project (GAPKINDO) is currently implemented in West-Kalimantan, as it is the case in Jambi, South-Sumatra and Lampung. An identification survey by GAPKINDO permits the selection of Sambas area for further implementation. The "raiyonisasi" project is based on the concept of having quality contracts with selected growers group in order to provide to the processors a rubber raw material of good quality and to alleviate the role and the cost of the middlemen.

#### **Visit to DISBUN office in Pontianak**

Meeting with Mr Termudji Hasma, who has accompanied us for the mission.

#### **21 April : Singkawang area**

**Visit to desa Gerangtung** : 33 plots of 1 ha have been planted.

Visit of a PKR-GK farmer's plot. Planting in December 1993. Clone supposed to be from PR serie (not clearly identified). Fertilization dosis was that of TCSDP (Dolomite, KCL, TSP and urea).

DISBUN has selected the villages.

The selection of farmers have been made locally by the kepala desa (chief of the village).

Cost of a stump outside the project : 350 rp.

Cost of one clonal seed : 20 rp.

Everytime it was possible, nearby SRDP plots have been rapidly visited.



### *Discussions with farmers.*

**Farmer A** has 1 ha with CS planting material (PKR-GK) and 2 ha of old jungle rubber (> 40 years old) and 0,5 ha of sawah (lowland rice). Exploitation system : D/2. Production = 8 to 9 kg/day. CS are coming from Sembawa. Some villagers receives CS, other received clones (PR 261). The farmer express a demand for clones and training for grafting. He is interested by RAS (Rubber Agroforestry System) based on coffee and pineapple as there is an economic outlet to Pontianak for such cash crops. Durian do not survived planting in this area and cocoa is not growing well. He is cash crop oriented. The farmer is aware of the TCSDP standart and follow them.

**Farmer B** has 1 ha PKR-GK and 2 ha TCSDP (GT 1). the TCSDP plot produces 20 kg/day od SLAB DRC 60, a yield of 2200 kg/hectare. Distribution of the production is 3/10 for the owner, and 7/10 are distributed between the tappers belonging to the family. Rubber is coagulated with formic acid and of good quality and paid 1100 rp/kg which is considered as very well and attracting for farmers. The farmer is very sensitive to quality price incentive offered by the middlemen and follow the TCSDP standart.

**Farmer C** : 2 ha of jungle rubber, 2 ha TCSDP and 1 ha PKR-GK. Use of herbicide. The plot has a great slope and is terraced (photo 2). Intercropping of rubber with cash crop trees including candle-nut tree (*Aleurithes*) and cocoa. The farmer is very interested by RAS (in particular RAS 2, see annex). The candle nut is used for cosmetics and sold 500 rp/kg in Singkawang. Each candle-nut tree produces 100 kg/year (50 000 rp/tree/year), the equivalent of 45 kg of rubber. Immature period is 4 years. Density of planting for candle-nut < 50 trees/ha  
He is also crooping upland rice in nearby ladang, yield =1,5 tons/ha.

**Farmer D** : 18 ha of rubber . The visited plot was planted with PR 261 including intercropping with chili/Banana, mungo bean, corn....The farmer is not interested by RAS and prefers to grow annual intercrops for the first 2 or 3 years. High level of intensification in plots planted with clones.

All farmers are typically in a "replanting" situation. Rubber has been introduced a long time ago, due to the proximity of Pontianak and the coast. Some problems with root disease, Fomes, and slopes in the area. Intercropping with annual crops or perennial crops is very comun. Farmers are intensifying their rubber systems , shifting from the jungle rubber to RMP (Rubber Monospecific Plot), as an indirect effect of the strong presence of SRDP/TCSDP in the area. There is a demand for RAS (in particular for cash crop oriented RAS 2) with a high level of intensification. Most of the farmers are class I or class II farmers. Intercropping rubber with cash crops seems to be the most interesting item for local farmers. There are all, more or less, in the process of shifting from jungle ruber ro RMP or RAS.

This situation confirms that as soon as a farmer may have access to the full rubber technological package, such as TCSDP, he will implement it, as the use of clones and



adapted maintenance lead to to a valuable increase of production, therefore of income, without any major risks. In this case, the only limitation is cash or credit availability. The strong presence of SRDP/TCSDP has obviously big secondary effects to non-project nearby farmers. It is noticed also the presence , in Sambas, north of this area, of a NES project related to PTP XII.

The main risk in the area is obviously the leaf disease risk on non adapted clones. It is a major issue to select leaf diseases resistant or tolerant rubber clones. The list of clones susceptible to *Colletotrichum*, the main current leaf disease, is presented in table 1.

The bottom price for rubber seems to be around 700 rp/kilo or below the price of 2 kg or rice. The current price for rubber of good quality is 1000 to 1200 rp/kg (1670 to 2000 rp/kilo DRC 100 %).

We recall that 1 ha TCSDP cost approximatively 2 000 US \$ (establishment and technical support up to production period), including all project cost, among it 600 US \$ are reimbursed by the farmer (up to 3 000 US \$ for NES/PIR).

The SRDP project also implemented a partial approach scheme providing to the farmers only clones. It has been considered as a failure. It could be interesting to observe the type of management applied by farmers to this planting material provided to farmers without direct technical assistance (to be included in the "clones use survey").

The clones distributed to the non-projects farmers may come from SRDP partial approach scheme, PKR-GK, DISBUN, PTP and private operators. These sources of improved planting material should be included into the "clones use survey". Relevant information to be collected can be : type of management applied by farmers (from full technological package to jungle rubber), growth and behaviour of clones, leaf diseases pressure on clones and clones adaptation level, clonal purity of the available improved planting material.

The idea of clonal planting material self-production by the farmer is recommended to limit the production cost that can be reduced as low as 150 to 250 rp per plant. The use of the technique of "tapi" rooting system (Getas Research Station), on limited scale will permit to save the cost of polybags and to gain growth by using rooted plant at planting (See annex 2).

## **22 April : Sanggau area**

### **Desa Sungei Kosah, 10 km from Sanggau.**

Farmer E : one plot PKR-GK of 1 ha planted with PR 261, 1 ha jungle rubber and 1 ha TCSDP + 1,5 ha upland rice (yield = 300 kg/ha). Strong slope. Very poor and degraded soil. Very few interest for annual intercropping due to the soil limitations. All ladang land are cultivated. Very poor secondary forest. 7 to 8 years of fallow in the ladang. The farmer wishes to keep growing rice in ladang , 1 ha every year, as



income from jungle rubber is not sufficient and cash is not available for any investment in clones. Land is still available in the village.

He produces a ten cm thick slab paid 1 000 rp/kg, up to 1200 rp/kg for the better quality. He will stop tapping rubber trees if the price goes below 700 rp. Middlemen are very present, looking for rubber. Rubber purchases are daily, as a reflect of the search of raw material for the nearby processors of Pontianak.

The trees present in jungle rubber are pekawai, durian, cempedak, petai and jengkoll. No sales from these trees but products are self-consummed.

Prices of some selected fruits in the region :

1 durian : 500 rp (a tree produces 50 to 100 fruits per year), sold 1000 rp in Pontianak.

1 kg of duku : 300 rp (a tree produces 100 kg/year)

1 kg of rambutan : 200 rp (a tree produces 80 kg/year)

Prices are doubled in Pontianak. Fruit production is interesting in this particular area. Fruit oriented RAS may be developed in this zone.

### *Conclusion*

The situation in West-Sanggau area is similar to that of Singkawang, with the effect of the strong presence of the SRDP project in the western part of the Sangau Kapupaten. Farmers, most of them of class I or II, may be interested in RAS 3 (fruit oriented).

It is important to notice the high technicity in rubber planting of the SRDP/TCSDP extensionists. This experience and technical knowledge may be used by SRAP for technical training and support. A cooperation between the remaining TCSDP staff and the SRAP project should be developed.

### *Visit to the Tanjung budwood garden (photo 3)*

5 hectares with PR 261, PB 260, RRIM 712, PR 255 and BPM 1.

The garden seems to be heterogeneous, some seedlings.

Referring to precedent visits to budwood gardens in the province by Mr Delabarre (1987-1991), this is reflecting the worrying situation of planting material purity and quality in the province, and in Indonesia as a whole. Attention should be put on planting material quality and purity. Emphasis should be put on SRAP good quality budwood production for the trials, with SRAP controlled budwood gardens in selected locations where clonal purity will be controlled by portable electrophoresis laboratory (CIRAD-BIOTROP).



## Visit to PT Rivaco Mandum Estate

Meeting with Mr Jerry, Director of the plantation. The estate is operated by KPD group (ex AAA group).

3 000 ha distributed as following :

PB 260	1347 ha	45 %
GT 1	1161 ha	39 %
PR 261	189 ha	6 %
BPM 1	84 ha	3 %
PB 235	58 ha	2 %
BPM 24	46 ha	1,5 %
RRIC 100	45 ha	1,5 %
BLIG (PCS)	67 ha	2 %

PB 260 is the predominant clone as a strategy against the *Colletotrichum* leaf disease (Origin : from Sungei Putih). Many trees are suffering from pink disease. A certain heterogeneity has been observed in the planting material. BLIG is coming from London Sumatra Estate (cost of one BLIG seed = 80 rp).

It seems that BPM 24 does not suffer severely from *Colletotrichum* locally, however it is a very susceptible clone. PR 261 do not grow well. PB 260 suffers from brown blast if tapping frequency is too high (exploitation system D/2). GT 1 is severely attacked by *Colletotrichum*.

BPM 1 is growing well and the best adapted clone seems to be RRIC 100.

The clones available in nurseries are : BPM 1, AVROS 2037, RRIC 100 and PB 260.

The visit to the estate permit to have an idea of the behaviour of some clones in order to help us to select those that can be cropped by smallholders in the particular climatic conditions of Sanggau Kabupaten described as wet and rainy (rainfall > 3000 mm/year), with a limited dry season and located close to the equateur leading to an erratic wintering, scattered along several months.

BPM 1 and RRIC 100 are the clones that seems to be the most adapted to the local environment, as well as PB 260 with the restriction that PB 260 should be preferently tapped in D/3. D/1 under smallholder conditions should be definitely avoided for PB 260 due to panel diseases occurrence. It should be interesting to obtain production data of BLIG polyclonal seedlings planting material, in order to have an idea of the production potential in this area, as BLIG may be one of the selected planting material for OFT.

The Sanggau region do not seem to be the best adapted for rubber production in estates, as oil palm seems to have the preference for planters.

Erosion is a risk (see photo 20).



## Conclusion on rubber growing in the West-Kalimantan province.

On the whole, rubber is not in very satisfactory conditions, as it has been already mentioned by some experts (M. Delabarre and D. Despreaux, CIRAD-CP, October 1993), due to very poor soils (very low CEC) and insufficient depth of soil (watertable at 60 cm or presence of hardpan...), heavy rainfalls, geographical position close to the Equator leading to erratic and scattered wintering, semi-permanent waterlogged state in some places and strong diseases pressure, in particular *Colletotrichum* leaf disease and pink disease (*Corticium*). *Corynespora* has also been spotted in the field (Sintang area) and should be considered as a possible future threat for the rubber plantations. It should be noticed that the most currently planted clone, resistant to *Colletotrichum*, PB 260, is highly susceptible to *Corynespora*.

The delay in growth leads to a delay at opening of, at least, one year. GT 1 is generally opened at 6,5 to 7 years old.

However, rubber remains generally the only reliable cash crop as a main source of income for most of the local farmers, currently only relying on small scale sawah, ladang swidden agriculture and "tembawang" agroforestry systems, fruits-nuts and timber oriented, where production is erratic and depends on "main flowering years" that may occur only every 3 to 5 years.

Rubber based agroforestry system, with various components, a kind of "rubber tembawang" may be a solution for smallholder in term of sustainable production and reliable source of income.

### *For RAS experimentation*

"Growth booster" starter fertilization treatment should be included in the OFT in order to secure a good growth of the trees (TSP).

The selection of clones should take into account the current, but also the possible future, leaf disease tolerance. A minimum of 5 clones should be selected and tested for farmers conditions in order to minimize the diseases risk. The chemical treatment with dithane, as well as early defoliation treatment, are not thinkable in smallholder conditions.

In order to keep a correct number of trees in OFT, it is also recommended to treat against Fomes root disease (with Bayfidan or calixin).

### **Saturday 23th April**

#### **Visit to the DINAS PERKEBUNAN OFFICE IN Pontianak with Mr HL Mangan.**

Short presentation of the PKR-GK project. Presentation of the SRAP project. DISBUN has also implemented a trial with rubber intercropped with rattan manau in Sanggau that we are welcomed to visit. Rattan seems to have a very good prospect in West-Kalimantan for further development (as well as for Sumatra and West-Java).



TABLE 1 : SUSCEPTIBILITY OF CLONES TO COLLETOTRICHUM

SUSCEPTIBLE	MEDIUM TOLERANT	TOLERANT
PR 107	PB 235	AVROS 2037
GT 1	PB 260	BPM 1
BPM 24	BPM 107	PR 261
PB 217	BPM 109	RRIM 600
PB 235 (from RRIM recommendations)	PR 302	RRIM 805
PB 255 (from RRIM recommendations)	PR 307	RRIC 100
PR 300	PR 309	RRIC 101
PR 303	PR 311	RRIC 102
RRIM 712	PR 314	RRIC 110
RRIM 728 (from RRIM recommendations)	RRIM 717	TM 5
		TM6
	TM 4	TM 8
	TM 9	PB 280 ( from RRIM recommendations)

When a clone is marked with "RRIM recommendations", it means that RRIM and IRRI don't classify the clone in the same class of tolerance.



Currently, most of rattan collected or produced in Indonesia is coming from the neighbouring province of East-Kalimantan.

Cost of one rattan seed : 2 000 rp (Sungei Putih). The supply of rattan seeds is problematic.

#### **Visit to the TCSDP office.**

Meeting with Mr Siamso. Mr Siamso proposes to supply the SRAP project with 5 000 rubber grafted plants, from Sintang nursery, gratis. Available clones are : BPM 1, BPM 24, PR 261, AVROS 2037, RRIM 712, RRIC 100, PB 260. This supply may permit to establish a part of the SRAP phase trials and is very welcome by the team. Two solutions may be adopted. The first one is to order to TCSDP the preparation and the grating of 5 000 plants according to the clones selected as relevant for the experimentation. This solution is less costly but has the disadvantage of not assuring the clonal purity of the planting material.

The second solution, the best in term of clonal purity, is to order to keep in Sintang nursery the 5 000 plants offered by TCSDP and to organize under our supervision, with the TCSDP technical staff, the grafting with selected budwood coming from Goodyear Plantation (for PB 260, BPM 1, PR 261 and RRIC 100) and Sungei Putih (for TM 9), which cost (budwood production and transportation) is taken by the SRAP project, in order to secure the origin and the purity of the planting material. This solution is recommended by the team as clonal purity of the planting material is essential for the experimentation.

**Afternoon :** meeting with Jerome Ex, from SFDP/GTZ Sanggau project  
Trip to Sanggau.

**Evening :** presentation of the SFDP project, Social Forestry Development Project, implemented by GTZ, and meeting with the SFDP team members.

**Sunday 24th April :** SFDP project in Sanggau area.

#### **Presentation of the SFDP/GTZ Sanggau project**

The project is implemented by GTZ through GFA-AGRAR consultants.  
The present staff, encountered by the team, is composed of :

- Mr Kuestler, team leader
- Jerome Ex : agroforestry
- Paulus Kimmam : forester
- Andreas Graeffen : economist
- IR Yuliardi Elifi, Forest Management Planning assistant
- C Yan Synyal : in charge of BLI-HK, Training and Information centre.
- Mr Apik, from forestry department, BLI, in charge of institutions coordination.
- Alosias Sandang, BAPEDA, District Planning Board, join project management.
- Mr Sunario, in charge of demonstration and experimentation.



## Short summary on the project history and objectives.

The project began in 1990, initially focused on tengkawang, a meranti specie, a nut-tree from which is extracted a paste used as a succedané for chocolate paste, and also a good timber tree. The original concept of the project was to plant 1600 ha of tengkawang. Very soon, the team discovered that it was already cultivated in agroforestry systems, the "tembawang" system, by the farmers, and that it was not realistic to base a project on such unreliable production : the trees produce only every 3 to 5 years, at each mastyear (fruiting year). Tengkawang could not be over-emphasized. The project has been then reoriented on agroforestry systems (TAS = Tengkawang Agroforestry systems) and forestry. Farming system research (FSR) has been conducted to have a better knowledge on such TAS, in order to develop sustainable and stable alternatives to slash and burn agriculture in the area and to protect the forests. A new concept has been developed in SFDP, Social Forestry Development Project, the new name of the project. Six villages have been chosen, representing the Sanggau Kabupaten, including dayak and malays people as well as transmigration villages. On-farm-trials and FSR have been conducted in these villages implemented by the BLI Training and Information Center, one of the two "department" of the project, the other one dealing with a concession of 103 000 ha, the PFMA

### Organization of the project.

The project is institutionally linked with the Directorate General of Reforestation and land rehabilitation ("regreening and social forestry"), see table 2.

#### *BLI*

The BLI/Training and Information Center is working outside the concession, covering the entire Kabupaten, and is in charge of training, extension, surveys, on-farm-trials and has a big demonstration plot of 25 ha in Sembodia, 2 km far from the SFDP facilities in Sanggau (photo 5), where alley cropping, forestry replanting and trees associations are experimented. Land is still available in this area and experimentation in controlled situation by SRAP is welcome by the team. A proposition is suggested in the technical annex for RAS 2 and 3. This plot may permit to us to test several technical hypothesis of RAS in a controlled situation.

#### *PFMA*

The PFMA, Participatory Forest Management Area, is dealing with land status organization, and reforestation in a concession of 103 000 ha where several hypothesis are tested :

- 1- stabilization of the agricultural system based on (photo 6 and 7) :

- a) intensification on lowlands with irrigated rice : the increase of productivity expected from the irrigated rice should permit to fit the farmers needs in term of food crops, and also as a possible source of income.



- b) medium intensification on agroforestry systems on ladang : the development of agroforestry systems (TAS or any other..) will permit to sustain forest like environment and to give an alternative source of income through production of fruits, nuts, timber....farmers are allowed to take profit from their agro-forests.

- c) allocation of some part of the land for permanent reforestation : the development, or reclaim, of a protected forest area, where farmers have incentives to implement nurseries, planting and protection for at least 2 years. No profit is expected from the protected forest area.

- 2 - discussion with farmers on land status and land-use through participatory approach in order to organize land use, cadastre, with emphasis on permanent reforestation. Target for reforestation is 15 000 ha for the next 5 years.

- 3 - experimentation, nurseries implementation, reforestation planting.

There is no logging activity in PFMA. A part of the land is still forested but most of the area is degraded land with Imperata or ladang. Land distribution is the following : old secondary forests 10 %, young secondary forests 40 %, primary forest 20 %, imperata savannah 5 %, Ladang, 15 %, rubber and cash crops plantations 10 %. (Photo 4) Access and communications are most of time rather difficult. A main road, a trail, is passing through the southern part of the concession.

Emphasis is put on wide scale land-use organization, in cooperation with department of forest, both on reforestation in the fields, and on institutionnalization of such approach through the Indonesian institutions or agencies that are concerned.

The objectives are to try to protect forests and local environment, to ensure income sources to farmers and to stabilize the agricultural activities through sustainable alternatives and an organization, at the village level, of the cadastral land-use by the farmers themselves in communities. The project is currently working in 8 villages (60 dusun or hamlets) in the PFMA (17 000 inhabitants). In such approach, farmers are relying on irrigated rice and the products of agroforestry system. The objective is to identify agroforestry systems that are the most adapted and profitable for the farmers. Obviously, Rubber Agroforestry System (RAS), with rubber as the economic driving force are adapted to such requirement.

#### Visit to desa Sanjan.

Sanjan is one of the very first village surveyed by the project. It belongs to the so called 5 "old villages" of the project, outside the concession area.

The village is typically representative of the situation in Sanggau zone, in easy-access areas.

Visit of a plot where rubber is intercropped with perennial crops (photo 11). Historically, the plot has been prepared for cocoa, with some shading trees such as *Albizia falcata*.



As cocoa planting material was not available and , eventually, grafted rubber has been planted, as well as other perenial trees. The plot is invaded with Imperata. Trees observed in the plot were :

*Food crops :*

- Banana and cassava, sugar cane,

*Trees :*

- some non-fruit Artocarpus spp
- several species of durian
- "nangka" : jackfruit (Artocarpus)
- "Bilian" : Eucideroxylum, "iron-wood",
- "Keladan" : Lauraceae
- Rubber, and in some place a rubber nursery
- Kapok

*Weeds and bush-weeds :*

- Imperata
- Chromolaena odorata
- some Cyperacees and fewn
- Melastoma
- Trema orientalis
- Alstonia angustiloba

In a way, this plot is an excellent demo-plot of RAS 2 or 3. It means that the idea of improved RAS is already existing in farmers minds, and that further OFT and adoptability of such systems fit already the farmers strategies. Discussions with farmers show that Sanjan smallholders, class III farmers, are the exact target of the SRAP project and this village should be selected for further OFT.

***Monday 25th April : PFMA area***

**Visit to the DISBUN rubber with ratan experimental plot near Sanggau (photo 8) .**

GT 1 is obviously mixed with some PR clones. The plot has been planted in 1981 (13 years old). Ratan is manau variety. Ratan is forecast to be collected at the age of 7 or 8 years old. Rubber is tapped in D/2. Yield is 1 000 kg/ha.

**Field trip to the concession area with Mrs Paul L Kimman and Alosias.**

Visit to the project facilities in the concession in Bantai (office and accomodation for students and researchers). Discussion with Mr Alosias. Presentation of the concession. All farmers are class III , along the road, and most of them class IV in very remote conditions (more than 2 hours of walk). The villages inside the concession are surveyed and monitored by enumerators who come back to the Bantai office every 2 months. The visit if the concession was along the road from Bantai to Balaisebut.



Soils are very poor and acidic, with hardpan at a depth of 1 to 2 meters, invaded by Imperata and ferns on all ladang. Imperata is a very major risk in the area. The analysis of the local biodiversity shows a big problem of soil fertility (photo 4). The real thing at stake here is sustainability and stability of any cropping system. Obviously, agroforestry systems based on rubber as a main source of income and/or reforestation are those that can bring a solution to this very degraded land. Some old secondary forests or primary forests are still present in the concession of 103 000 ha.

For complete explanation of the activities implemented in the concession and more information, see bibliography.

In the concession zone, some on-farm trials may be implemented in villages close to the road, with emphasis on RAS 1 (improved jungle rubber) and RAS 3 (RAS focused on Imperata control).

#### **Visit to a farmer located close to the road in PFMA (photo 9 & 10)**

Rubber seedlings are intercropped with cassava and coffee (2 varieties) and some clusters of banana. The Robusta coffee seeds come from Sambas (cost 500 rp/kg). Coffee does not seem to grow very well, but the farmer lacks technical knowledge in coffee cropping.

The plot is 4 years old and is invaded by Imperata when not intercropped. A second plot is supposed to be GT 1. In fact, no grafting point is seen on most of the trees, the trees are just seedlings (photo 10). The farmer did remember having seen grafting in the nursery. This shows that training is needed for farmers in this area, technical training on planting, grafting and information on clones. The so-called "clones" were sold 300 rp/stump, which represents a strong investment per hectare in this zone.

Farmers show their interest in clones adoption but still rely on very unreliable sources of planting material and do not have any means of quality control.

The farmer grows also pepper. A pepper stick costs 300 rp.

#### *Cost of rubber planting material in Sanggau area.*

A rubber seed costs 6 rp from PTP XIII in Sintang (20 rp in Sungei Putih for reference).

The blig planting material, polyclonal seeds, cost 80 rp/seed in 1990. DISDUN claims to sell some at 20 rp/seed (Unknown origin....).

The origin and the quality of rubber improved planting material is really problematic.

A nearby Forestry Department nursery of Albizzia falcata has been visited. Management is very poor. The question is what to do with such amounts of Albizzia trees?



### *Conclusion on the PFMA area*

Further discussions with SFDP staff shows that the PFMA/concession is not the suitable target to implement currently OFT due to its very specific status within the project. The concession zone will not be taken into account, at least for the phase I project implementation.

It is suggested that RAS/OFT should be developed in BLI area, outside the PFMA area.

### **Visit of a "tembawang" or 'Pulau bua', namely 'fruit island' (photo 12 & 13):**

A tembawang is a fruit oriented agro-forest, with a high density of Tengkawang, . Other fruit trees may be durian, duku, mango, jengkoll.....(see the list of possible perennial trees in the technical annex).

In this plot, rubber is present with 50 to 100 tappable trees/ha, with a high level of young rubber regenerating trees. Shading is important. Rubber exploitation is very poor (photo 13) The plot is more than 80 years old where the importance of rubber is decreasing to the profit of fruit trees, and in particular Tengkawang. The plot is typical of the local agroforests and can be considered as one of the possibilities of evolution, in the long term, of the RAS systems (see figure 3 ).

The neighbouring plot, a 2 years old ladang, is planted with rubber seedlings and is invaded by bamboos. The soil must be partially flooded at certain periods of the year. Rubber still stands after sometimes up to 2 or 3 destroying events (cuttings), showing a great adaptability and resistance to forest regeneration..

### **Visit of SEMBODIA experimentation and demonstration plot.**

The plot of 25 ha is located 2 km at the outgoing of Sanggau town. Land is distributed as 10 ha for forestry; 7,5 ha for agroforestry; 3 ha for the arboretum and 4,5 ha for natural forest.

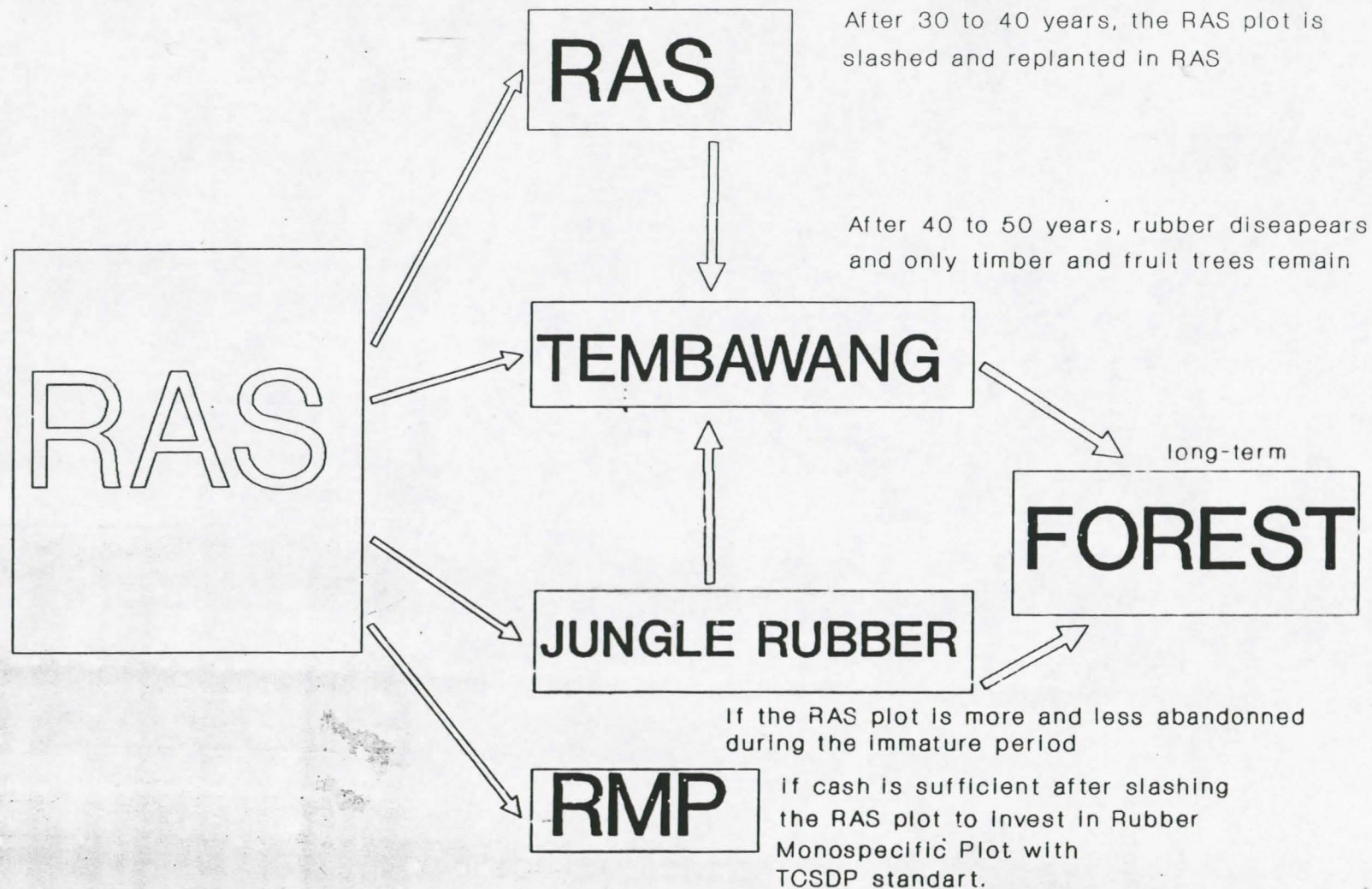
Some trials are focused on timber species planting in bush secondary forest natural regrowth, "beluka" in Indonesian, (Shorea spp, keladon, Ironwood....) and also in ladang invaded by Imperata. Obviously, Imperata is the main problem after clearing. 9 weedings have been necessary in 30 months to secure the timber trees. Analysis of observations in Sembodia trials on trees behaviour may be very useful for the identification and the design of RAS 2 and 3. Documents and information are available. Alley cropping has been tried with various combinations using Leucaena, Acacia mangium, Setaria, Cassia alata, Gliricidia, Calliandra and other firewood or protection species with corn, cassava, sugarcane.....Imperata and ferns are everywhere. Labour requested for maintenance in alley cropping are recorded.

In this zone, but that is true for all West-Kalimantan, anti-Imperata strategy is the very first priority after slash and burn and land clearing for any sustainable system. RAS



# EVOLUTION OF RUBBER AGROFORESTRY SYSTEMS

Figure 3





3 should be tried in priority. The main stake of the zone is the reclaim of very degraded ladang land invaded with ferns and Imperata, or to avoid Imperata at replanting. If alley cropping system are very promising in research station, it is hardly adopted by farmers due to the still high level of risk and the required labour for maintainance. Agroforestry systems seems to be definitively more adapted to the current cropping local practices and the available labour. The labour productivity is generally very in favour of agroforestry systems rather than in stabilized annual foodcrops systems requiring labour for maintainance and cash input for fertilizers, plant protection and improved planting material.

## CONCLUSION with SFDP

We would like to thank the SFDP/GTZ team for its warm welcome. A final discussion the friday 29th April, with Mr Kuestler, SFDP/team leader, permit to identify clearly a possible cooperation between SFDP and SRAP in term of RAS on-farm experimentation in the Sanggau area, outside the PFMA area. Obviously, the RAS strategy gives a possible alternative to the need of an adapted agroforestry system that can provide to the farmers a reliable source of income and a sustainable alternative to swidden agriculture. The adoptability of RAS should be high due to the already existing tradition of agroforestry, and the presence of rubber in the area.

### *On-farm-experimentation and surveys*

The selected zone may be any village in the Sanggau area, outside PFMA, at least for the phase I of SRAP project implementation. It is suggested to take profit from the existing knowledge and presence of enumerators in the 6 villages monitored bu SFDP, to implement, in priority, RAS in these villages that are representative of the zone.

Reconnaissance surveys may be conducted in october 1994 to select farmers, and OFT plots for planting in February/March 1995. The number of OFT plot, 1 plot per farmer of one hectare, may be between 10 and 20, so 10 to 20 hectares, depending on funding availability. See anex 1 : methodology of RAS experimentation.

A trial in controled situation may be implemented in the Sembodia 25 ha experimentation area : a trial of 2 hectares with variations of RAS 2 and 3 (planting density, type of associated trees, effect of foodcrops or covercrops or protecting crops.....).

A budwood garden, fully controled by SFDP, also in Sembodia area may be implemented in order to secure the clones planting material purity and supply. Rootstocks may come from SRDP/TCSDP nursery in Sintang, and budwood may be ordered at a reliable source : PT Goodyear, and Sungei Putih (for TM 9). PCS/BLIG seeds may be ordered at London Sumatra Estate, North Sumatra.



The concept in rubber planting material will be the following :

- the control of the source of initial budwood from a reliable source : the collection budwood garden of Sembodia. It should be very useful to test the clonal purity of garden with electrophoresis technique (CIRAD-BIOTROP).
- the implementation of small scale village budwood garden in selected villages where OFT will be implemented,
- the implementation of small scale nurseries using "tapi" rooting technique by the farmer itself. (see annex 2)

The other associated perennial crops seeds or plants may be obtained through SFDP that already implement nurseries with farmers in PFMA. Further introduction of selected varieties, or improved varieties will be studied.

The "clone use survey" will be also implemented in the area.

Trials implementation and monitoring, data collection may be done with the help and assistance of SFDP enumerators and staff from BLI.

It is necessary to see the possibility to fund a mission of the portable electrophoresis laboratory from CIRAD-BIOTROP/France, and a possible transfert of technology. SFDP show interest in that domain. It should be strengthened that clonal purity is a major issue, as observations in the fields in all the province show a real problem in term of planting material quality.

### *Training*

SFDP staff express the need for training in term of rubber planting techniques, OFT monitoring and FSR. Training sessions should be organized in Sangau, all facilities are available for that purpose, with the SRAP team and with the help of some extensionists from SRDP/TCSDP for technical training on rubber. Participatory approach will be implemented, in term of OFT implementation, but also for the trials analysis, seminar with farmers involved in trials may be organized to assess the suitability of RAS. Technical information should be provided.

Innovation adoption process and institutional aspects should also be taken into account in order to provide real operational research results for development. FSR will permit to replace and to analyse RAS systems in term of land-use, labour, risk, opportunity cost, economic assessment.....

These propositions will be submitted to SFDP staff for approval. A simple MoU may be signed between SFDP and SRAP. The annex 1 explain in a draft version the methodology of the RAS trials.



SFDP/GTZ may be our main partner for operating RAS on-farm-experimentation in West-Kalimantan. There is a common interest in both side to develop an operational research on that subject.

**Thursday 28 April : Sintang area.**

With Mr Joko Tryono, in charge of UPP/TCSDP Sintang office, and Mr Endang Suparman, technician.

**Visit of a jungle rubber plot and a PKR-GK plot**

40 km west of Sintang, desa Garnis.

**Farmer A (photo 16)**

Typical jungle rubber with rattan, durian, petai, rambutan..with a high biodiversity.

PKR-GK plot : 1,1 ha : 600 trees, no fire after slashing of the old jungle rubber. First year intercropping with upland rice. The farmer was advised not to plant any fruit trees with rubber (TCSDP standart). Planting material is PCS (polyclonal seedlings) coming from Sembawa. This PCS has a good growth but is limited in production and problems appear at opening with the heterogeneity of the trees. 4 weedings have been made. Imperata has invaded the plot.

Rubber dried but unsmoked sheets are sold 1250 rp/kg (very good quality, DRC 65 %). Cuplump, DRC 50 % is sold 400 rp/kg. Exploitation system : D/1, D/2 depending on rainfall

The farmer has also a SRDP plot : yield : 1 500 kg/ha, D/1-D/2.

**Farmer B**

The plot is on old jungle rubber (1 ha). Planting in May 1993. Use of glyphosate for weed control. Planting material is PCS from Sembawa.

Upland rice in intercropping the first year gave 300 kg/ha (local variety "bawan").

**Visit of transmigration area in Desa Parisan baru.**

Southwest of Sintang.

Land has been slashed and burn and is fully invaded by Imperata. Some rambutan plantations have been seen, in very bas shape with a very high spacing (photo 17).

The farmers have 2 ha. . 18 ha have been planted by PKR-GK. SRDP/TCSDP is also present in the area. As the soils is very poor with a strong pressure from Imperata, rubber plots are the only reliable future source of income. Soil fertility recovering is a major issue as well as anti Imperata strategy.

Planting material is coming from TCSDP and some private operators (cost of one stump : 300 rp)



### **Visit of TCSDP Sintang nursery and budwood garden**

Budwood garden : available clones are AVROS 2037, PR 261, RRIM 712 and PB 260. Planting material is coming from Sungei Putih and Medan. Some mixing. It could be difficult to implement trials with such planting material where clonal purity is not guaranteed. It is suggested to graft them with budwood coming from a reliable source.

The nursery has 5 ha and provide plants for TCSDP, the transmigration and the governor's local project. Plants offered by TCSDP in Pontianak will come from this nursery.

### **Visit of a private nursery (Photo 15)**

Very poor management and very poor quality of planting material. Comparison with farmer's nursery (photo 14)

### **Visit to a PKR-GK farmer in Desa Manis Raya**

40 hectares have been planted by PKR-FK in this area.

In the farmer's plot, planting has been made in late, one year after slash and burn, due to late supply of planting material by the project. Plants are suffering from competition with Imperata. Rootstock is too small, grafting has been made too early. The clone seems to be a PR serie.

### **Visit of transmigration area**

Southwest of Sintang. (photo 18 and 19)

Land has been slashed and burn and is fully invaded by Imperata.

The farmers have 2 ha : 1 plot, "lahan satu", around the house, generally planted in "pekarangan", or agroforestry gardens, with fruit trees, and rice and palawijas and 1 plot, "lahan dua", for upland rice or any other annual foodcrops. There were before forbidden to crop trees but rubber planting or other trees are allowed since 2 years (1992). Several hectares of rubber have been planted by PKR-GK. SRDP/TCSDP is also present in the area. As the soil is very poor with a strong pressure from Imperata, rubber plots are the only reliable future source of income. Soil fertility recovering is a major issue as well as anti Imperata strategy. A relatively good maintenance is applied. The growth of rubber is correct. Interrows between lines are too big, limiting the shading, and therefore limiting Imperata. A plantation 4x4 should be adopted to increase the level of shading.

### **Visit of an old SRDP nursery.**

The plants are too old to be grafted, but the decision has been taken to plant them as seedlings....



## **CONCLUSION on Sintang area : RAS *implementation***

It is recommended to implement RAS 3 trials in this zone, in particular in the last transmigration area, with emphasis on use of fast-growing shading trees, also for soil improvement, and perennial associated trees. The plots have been already planted with rubber, but still experimentation may be conducted. Use of specific plants for soil fertility recovering and anti Imperata strategy should be done. A specific OFT protocole will be release for this area.

OFT with PKR-GK farmers may be conducted with TCSDP staff for implementation and DISBUN staff for monitoring and data collection.

### ***Friday 29th April***

Morning : meeting with SFDP staff.

Afternoon : return to Pontianak.

### ***Saturday 30th April***

Morning : visit to DISBUN, SRDP and GAPKINDO offices in Pontianak.

Afternoon : return to Jakarta.



## **CONCLUSION ON POSSIBLE RESEARCH ACTIVITIES IN WEST-KALIMANTAN**

### **1 On-farm-experimentation and surveys in SFDP/GTZ Sanggau area.**

#### **1.1 On-farm -experimentation with smallholders**

The selected zone may be any village in the Sanggau area, outside PFMA, at least for the phase I of SRAP project implementation. It is suggested to take profit from the existing knowledge and presence of enumerators in the 6 villages monitored by SFDP, to implement, in priority, RAS in these villages that are representative of the zone. Reconnaissance surveys may be conducted in October 1994 to select farmers, and OFT plots for planting in February/March 1995. The number of OFT plot, 1 plot per farmer of one hectare, may be between 10 and 20, so 10 to 20 hectares, depending on funding availability. See annex 1 : methodology of RAS experimentation.

#### **1.2 Experimentation in SEMBODIA area in controlled situation.**

A trial in controlled situation may be implemented in the Sembodia 25 ha experimentation area : a trial of 2 hectares with variations of RAS 2 and 3 (planting density, type of associated trees, effect of foodcrops or covercrops or protecting crops.....).

#### **1.3 Budwood garden in Sembodia area.**

A budwood garden of 600 m<sup>2</sup>, fully controlled by SFDP, also in Sembodia area may be implemented in order to secure the clones planting material purity and supply. Rootstocks may come from SRDP/TCSDP nursery in Sintang, and budwood may be ordered at a reliable source : PT Goodyear, and Sungei Putih (for TM 9). PCS/BLIG seeds may be ordered at London Sumatra Estate, North Sumatra.

It is necessary to see the possibility to fund a mission of the portable electrophoresis laboratory from CIRAD-BIOTROP/France, and a possible transfert of technology. SFDP show interest in that domain. It should be strengthened that clonal purity is a major issue, as observations in the fields in all the province show a real problem in term of planting material quality.

#### **1.4 Trial improved planting material production by the smallholder**

The concept in rubber planting material will be the following :

- the control of the source of initial budwood from a reliable source : the collection budwood garden of Sembodia. It should be very useful to test the clonal purity of garden with electrophoresis technique (CIRAD-BIOTROP).
- the implementation of small scale village budwood garden in selected villages where OFT will be implemented,



- the implementation of small scale nurseries using "tapi" rooting technique by the farmer itself. (see annex 2)

The other associated perennial crops seeds or plants may be obtained through SFDP that already implement nurseries with farmers in PFMA. Further introduction of selected varieties, or improved varieties will be studied.

Trials implementation and monitoring, data collection may be done with the help and assistance of SFDP enumerators and staff from BLI.

### **1.5 Training**

SFDP staff express the need for training in term of rubber planting techniques, OFT monitoring and FSR. Training sessions should be organized in Sangau, all facilities are available for that purpose, with the SRAP team and with the help of some extensionists from SRDP/TCSDP for technical training on rubber. Participatory approach will be implemented, in term of OFT implementation, but also for the trials analysis, seminar with farmers involved in trials may be organized to assess the suitability of RAS. Technical information should be provided.

### **1.6 Surveys**

Innovation adoption process and institutional aspects should also be taken into account in order to provide real operational research results for development. FSR will permit to replace and to analyse RAS systems in term of land-use, labour, risk, opportunity cost, economic assessment.....

These propositions will be submitted to SFDP staff for approval. A simple MoU may be signed between SFDP and SRAP. The annex 1 explain in a draft version the methodology of the RAS trials. SFDP/GTZ may be our main partner for operating RAS on-farm-experimentation in West-Kalimantan. There is a common interest in both side to develop an operational research on that subject.

## **2 CONCLUSION on Sintang area : RAS implementation**

### **2.1 OFT : RAS 3 with PKR-GK farmers.**

It is recommended to implement RAS 3 trials in this zone, in particular in the last transmigration area, with emphasis on use of fast-growing shading trees, also for soil improvement, and perennial associated trees. The plots have been already planted with rubber, but still experimentation may be conducted. Use of specific plants for soil fertility recovering and anti Imperata strategy should be done. A specific OFT protocol will be release for this area. OFT with PKR-GK farmers may be conducted with TCSDP staff for implementation and DISBUN staff for monitoring and data collection.



## **2.2 PKR-GK farmers survey**

The farmers involved in RAS/OFT implementation will be surveyed and integrated in the farmers typology.

## **3 SURVEYS**

The "clone use survey" will be implemented in Singkawang, Sanggau and Sintang areas.



### **Experts of the GAPKINDO/CIRAD/ICRAF/ORSTOM team:**

Eric Penot : CIRAD-CP, agro-economist, from 20th to 30th April  
Hubert de Forresta : ORSTOM/ICRAF, botanist, from 23th to 30th April  
Dennis Garrity : ICRAF, director ICRAF/Indonesia, from 20th to 26th April  
A.F.S Budiman : GAPKINDO, director, from 20th to 23rd April  
Michel Delabarre : CIRAD-CP, agronomist, from 20th to 30th April

### **List of encountered staff :**

#### **GAPKINDO/Pontianak :**

Mr Leo Abam, headman of GAPKINDO/Pontianak and Mr Nico.

#### **GAPKINDO members**

Rustan Indra and Dr Tjaw Tji Jong/New Kalbar Processor  
Bambang Ngadimin/Sumber Djantin  
Samuel Lieyardi and Sastra Wijaya/Sumber Alam  
Chan Bon Chan and Lie Tjiauw Djin/Pt DT Hok Tong  
Steve Sia/Ciat Usaha Dieng.

#### **DISBUN office in Pontianak**

Mr HL Mangan.  
Mr Termudji Hasma

#### **PT Rivaco Mandum Estate**

Mr Jerry, Director of the plantation

#### **TCSDP office.**

Mr Siamso. In charge of TCSDP for the province.

#### **SFDP/GTZ Sanggau project**

The project is implemented by GTZ through GFA-AGRAR consultants.  
The present staff, encountered by the team, is composed of :

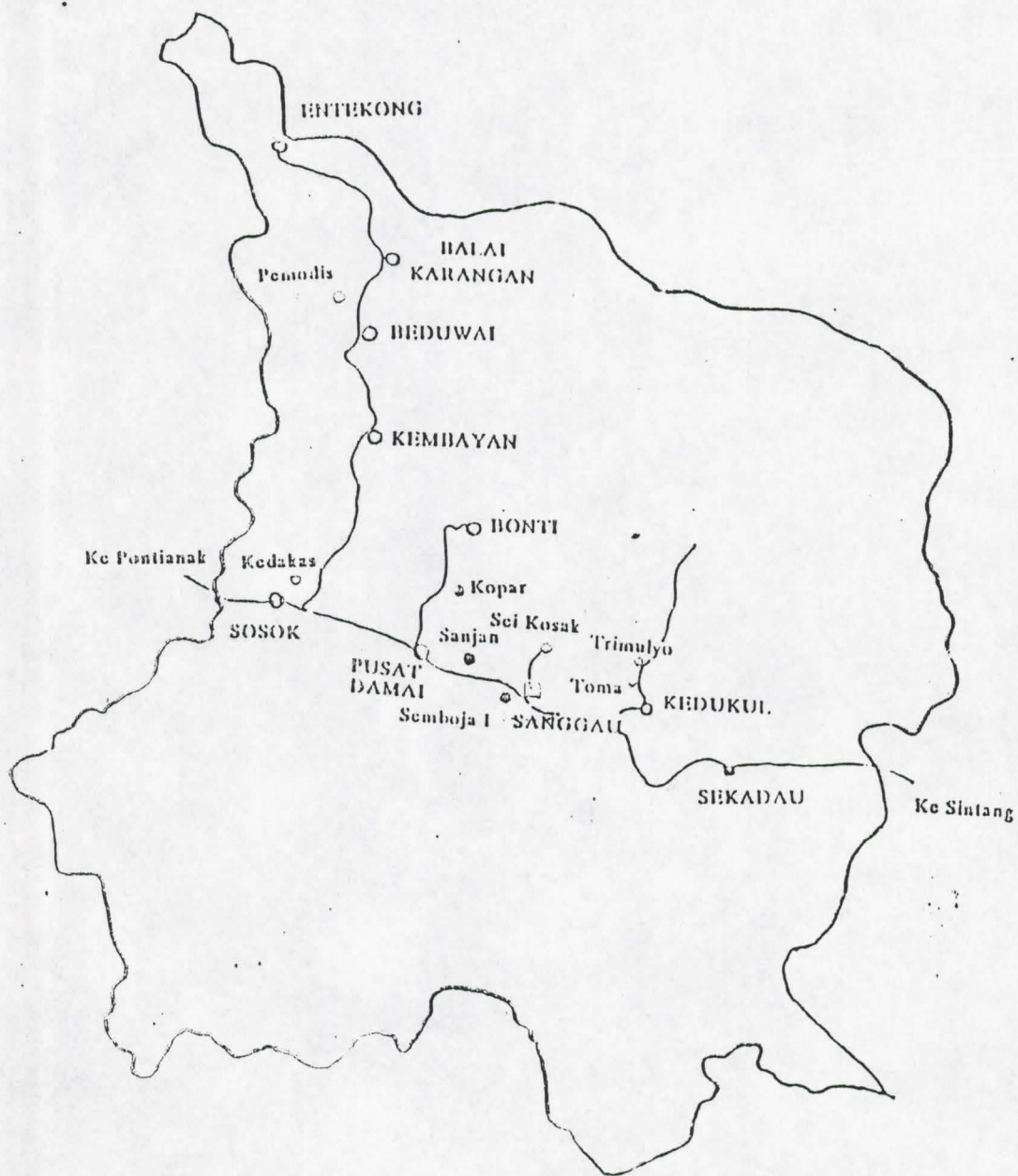
- Mr Kuestler, team leader
- Jerome Ex : agroforestry
- Paulus Kimmam : forester
- Andreas Graeffen : economist
- IR Yuliardi Elifi, Forest Management Planning assistant
- C Yan Synyal : in charge of BLI-HK, Training and Information centre.
- Mr Apik, from forestry department, BLI, in charge of institutions coordination.
- Alosias Sandang, BAPEDA, District Planning Board, join project management.
- Mr Sunario, in charge of demonstration and experimentation.



***PRESENTATION OF THE  
SFDP/TGZ SANGGAU PROJECT***



# The Sanggau Kabupaten.

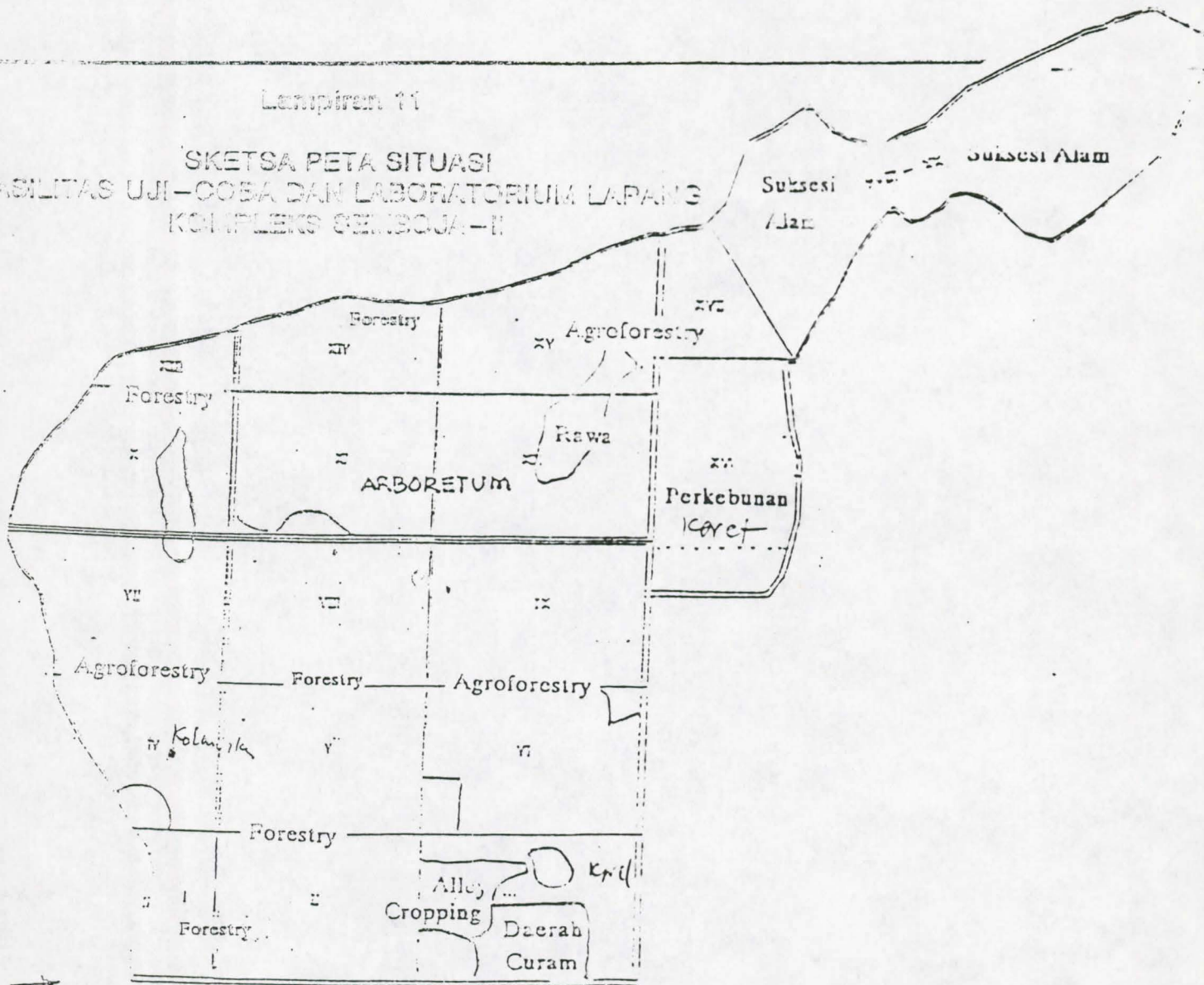




# The 25 ha Semboja area

Lampiran 11

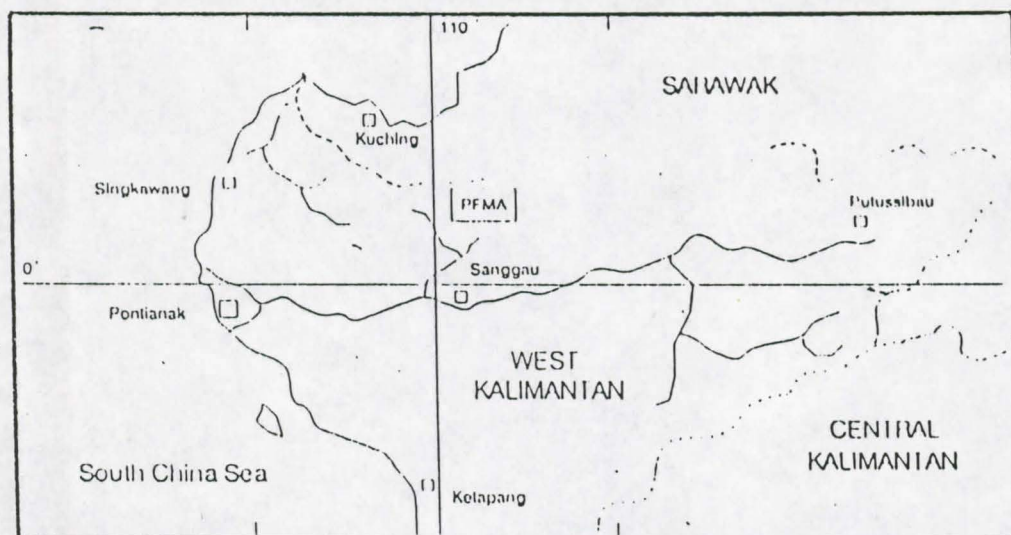
SKETSA PETA SITUASI  
FASILITAS UJI-COBA DAN LABORATORIUM LAPANG  
KOMPLEKS SEMBOJA-II





# BACKGROUND OF THE SFDP – MODEL – CONCESSION FOR "PARTICIPATORY STATE FOREST MANAGEMENT"

(Participatory Forest Management Area)



I Experiences of SFDP in the field of community forestry since May 1992 with the following conclusions:

- The local population disposes of great knowledge, experiences and interest in sustainable forest management systems (e.g. Tombawang, Hutan Tutupan) on community land.
- The dialog between the Ministry of Forestry and the local population is poor. This causes among others that:
  - the physical existence of settlements in state forest areas is officially not acknowledged yet
  - the potential of the local population to support the Ministry of Forestry in preserving and maintaining the forest is not yet utilized
  - role and function of the Ministry of Forestry are not yet sufficiently acknowledged by the local population.
- The dialog between the Ministry of Forestry and the local government in view of an integration of sectoral and spatial/regional development is poor.

II Adjustment of the SFDP concept:

- Awareness that innovative circles in the Ministry of Forestry have a similar understanding of the situation and are looking for a pilot scheme to develop and test appropriate approaches
- Intensive discussions on central level with government officials from the Directorate Generals for:
  - Reforestation and Land Rehabilitation as leading agency for the SFDP project
  - Forest Utilization as controlling agency for the commercial utilization of state forest land
  - Research and Development, responsible for the development of improved technologies
- Intensive discussions with government officials of forestry institutions on province level involved in SFDP
- Approval of incorporating the PFMA approach in the SFDP project strategy:
  - General approval by the German institutions involved in the project (BMZ, GIZ) in 8/91
  - General approval by the Sanggau district regent (Bupati) in 11/91
  - General approval by the forestry institutions on province level involved in the project after an exposé in 11/91
  - Basic agreement on the PFMA approach after an exposé in the ministry of Forestry in 12/91
  - General approval by the Governor after an exposé in 3/92
  - Signing of a Technical Working Agreement between the Ministry of Forestry and GIZ for phase I of SFDP in 5/92
  - Written approval by the Minister of Forestry in 7/92



## GENERAL TASKS OF THE PFMA

1. Design of a technical model for the simultaneous, sustainable utilization of timber and non-timber forest products (Economic Utilization of Biodiversity). This model shall later on contribute to the design of technical guidelines for the management of state forest land by the local population which shall be elaborated and decreed by the Ministry of Forestry.
2. Initiation and promotion of an organization which enables the local population to perform the task of sustainable forest management in a self-reliant way, but allows for a proper control by the responsible sectoral and regional government institutions (e.g. a legalized non-profit organization [Yayasan], which can coordinate among villages and at the same time act as concession holder vis-à-vis the Ministry of Forestry).
3. Support to the Ministry of Forestry in the elaboration of regulations which allow a transfer of the PFMA-approach to other parts of Indonesia. The aim of such regulations would not be to replace, but to complement the existing regulations regarding the utilization of state forest land.

## COMPARISON BETWEEN THE PFMA - APPROACH AND THE EXISTING MANAGEMENT SYSTEMS FOR STATE FOREST LAND

	HPH (Forest/Timber Concession)	HTH (Plantation Concession)	"KIIMA" *) (Concession for multiple Utilization)
Income Target	Export/Devisa	Export/Devisa	Local Income
Technical Implementation	Selective timber cutting, only little reforestation	Plantation with fast rotation, monoculture	Management of an ecological system (selective cutting, reforestation, utilization of non-timber forest products)
Executing Agencies	Private/Public Forest Enterprises	Private/Public Forest Enterprises	Local non-profit organization
Technical System	TPTI	HTH	to be developed
Controlling Mechanism	external	external	external + internal (social)
Ecological Impact	Diminuation of biodiversity	Expansion of monoculture	Maintaining and improvement of resources
Political/Social Impact	Increase of existing imbalances	Increase of existing imbalances	Integration of minority groups in national development

\*) KEBUN HUTAN MIRIP ALAM (Preliminary name for the technical system aimed at, meaning 'NATURAL FOREST GARDEN')



# PLANNED ACTIVITIES IN THE PFMA DURING PHASE I OF SFDP ( UNTIL 9/93 )

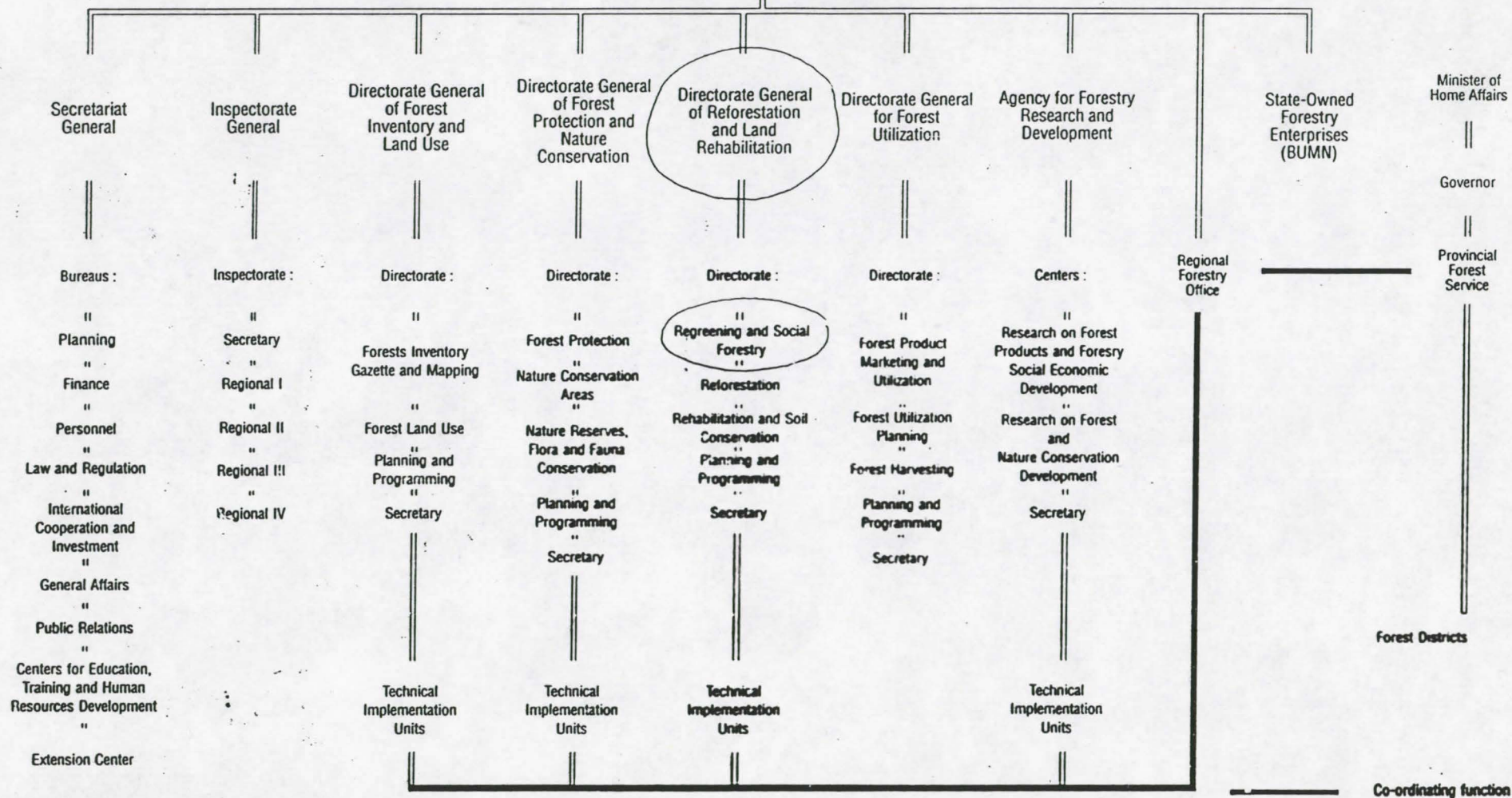


Activity	Responsibility	Time - Table
I Preliminary Assessment of - Forest Resource Base (Timber+NTFP) - Socio-Economics	Team SFDP, Working Team Province Level Team SFDP, Hospit Univers Goett - Trad Landuse UNTAN - PSW (Agustina) Role of Women, Rural Household Economics UNTAN - Faculty of Law (Indones) Trad. Right (Adm) SEAMEO - UI - GTZ Nutrition	8/92 - 10/92 8/92 onwards 8 - 10/92 8 - 10/92 4/93
II "Founding of the "PFMA Supervisory Boards" on district level	Decree Bupati	10/92
III Agroforestry promotion on community land in 5 main settlements in the PFMA	Team SFDP, relevant institutions	Start in 10/92
IV Elaboration of suggestions for: - Forest Function Mapping - Management strategy	Team SFDP, Working Team Province Level	10/92 - 02/93
V Design of a strategy for institution building in the PFMA	P3PK-UGM, Prof. Mubyarto, Sanggau District Governm	10 - 12/92
VI Presentation of the development strategy in the PFMA to Ministry of Forestry, Reg. Government	Team SFDP, Working Team Province Level	02 - 03/93
VII Approval of the management strategy by the Minister of Forestry		05/93
VIII Elaboration of participatory forest inventory methods	Team SFDP, Working Team Province Level	Spring 1993
IX Participatory planning of forest management on state forest land in the vicinity of 5 main settlements in the PFMA	Team SFDP, Working Team Province Level	6/93 onwards

Table 2

# ORGANIZATION OF THE MINISTRY OF FORESTRY

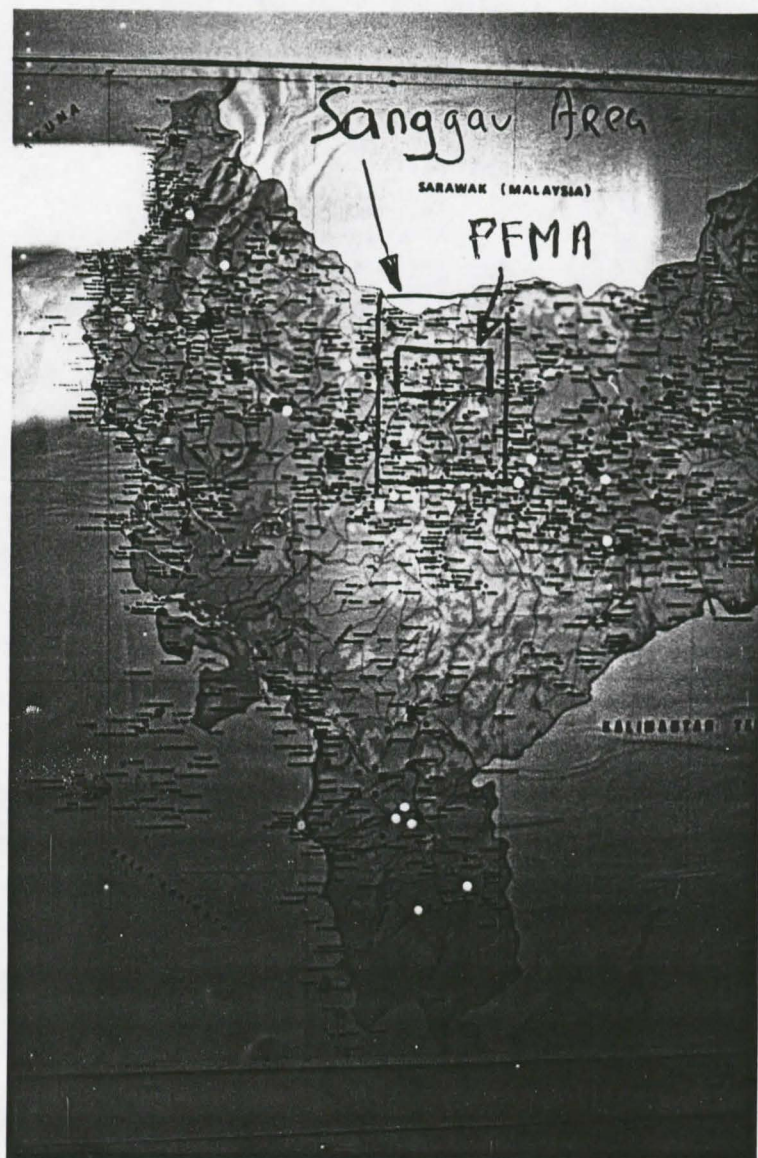
## Ministry of Forestry





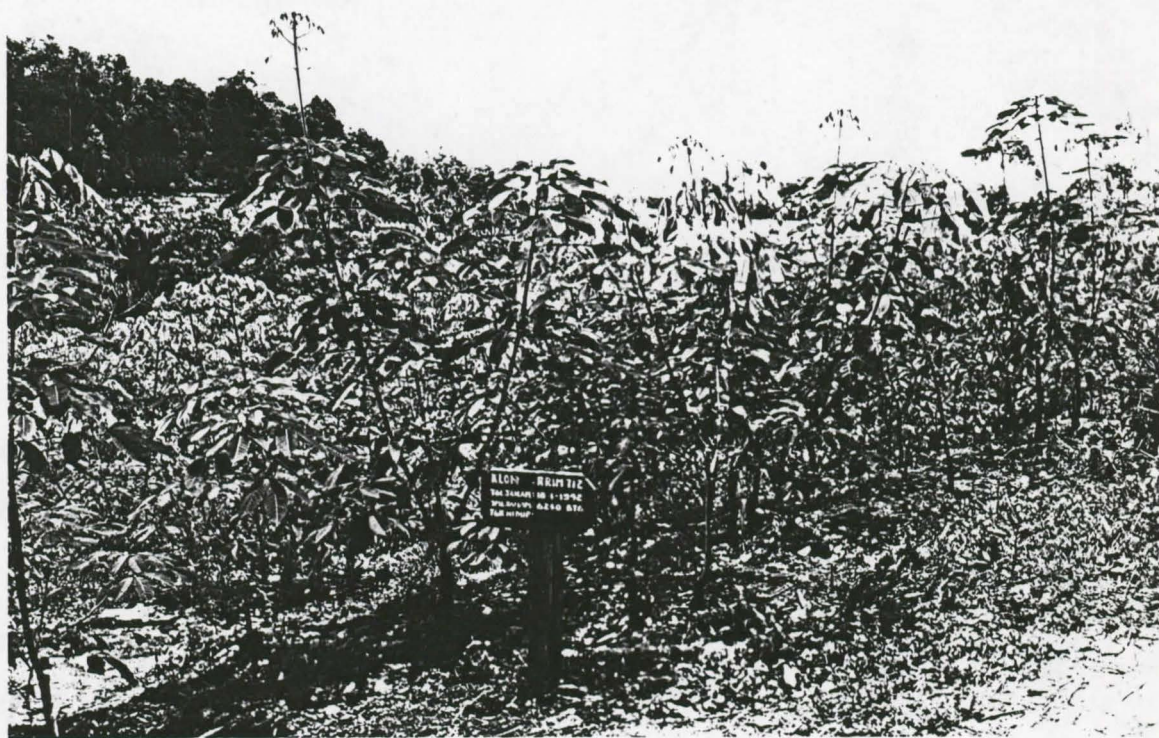
## **PICTURES**

Photo 1 : the various rubber smallholder projects in the West-Kalimantan area.  
In green : the SRDP zone. The SFDP/GTZ project area is delimited, including the PFMA area.





**Photo 2 : PKR-GK smallholder's plot in Singlawang area.**



**Photo 3 : PKR-GK budwood garden in Tanjung.**



**SFDP/GTZ project : in PFMA, Participatory Forest Management Area :**  
Photo 4 : southern part of the zone with degraded ladang land



Photo 5 : SFDP/TGZ project : **Sembodia 25 ha experimentation area** : alley cropping trial on slope.



**SFDP/GTZ project : in PFMA, Participatory Forest Management Area : patterns of project intervention based on land-use.**

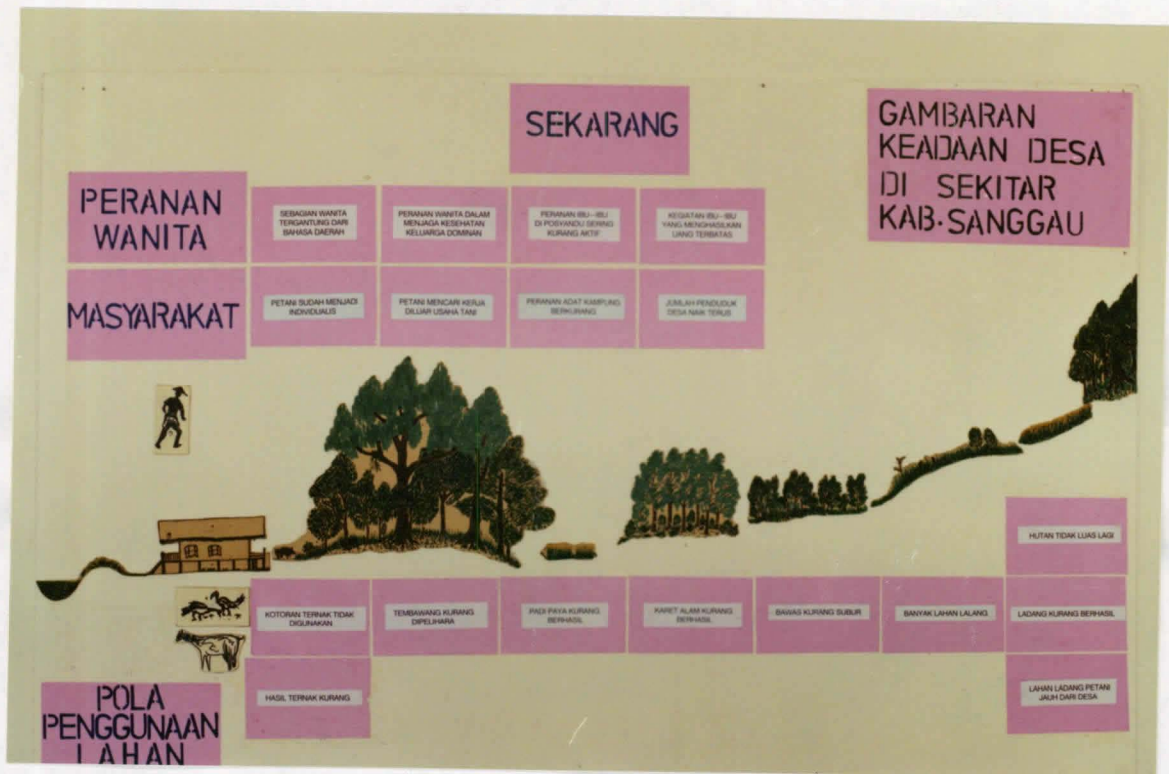


Photo 6 : before project intervention



Photo 7 : after project intervention



**Photo 8 : Sanggau area : DISBUN trial : GT1 intercropped with rattan Manau**



**Photo 9 : SFDP/GTZ project : PFMA area, smallholder rubber seedlings plot intercropped with banana and oil palm.**



Photo 10 : **PFMA area** : farmer's plot with supposed GT1, in fact seedlings, partly intercropped with banana and coffee.



Photo 11 : **SFDP/GTZ project : village of Sanjan** : rubber plot intercropped with fruit and timber trees as well as shading species (initially forecast for cocoa). An exemple of what might be a RAS 3 plot.



Photo 12 : **SFDP/GTZ project** : a tembawang plot, with rubber seedlings and a tengkawang tree in the back, a Tengkawang Agroforestry System, TAS.



Photo 13 : **SFDP/GTZ project** : in a tembawang plot, a rubber seedling tapped under smallholder management.



Photo 14 : **Sintang area** : non-project farmer's nursery



Photo 15 : **Sintang area** : a private nursery





Photo 16 : **Sintang area** : a PKR-GK farmer's plot, well managed, with weeding on rubber rows, inter-rows invaded by Imperata, after slashing an old jungle rubber.



Photo 17 : **Sintang area : transmigration area** : burning of Imperata.



Photo 18 : **Sintang area** : a PKR-GK farmer's plot in the transmigration area, well managed, with weeding on rubber rows, inter-rows invaded by Imperata, after slashing old secondary forest. RAS 3 may be implemented in this kind of plot.



Photo 19 : **Sintang area** : a PKR-GK farmer's plot in the transmigration area, well managed with small terraces. RAS 3 may be implemented in this kind of plot.



Photo 20 : erosion in PT Rivaco Mandum Estate.

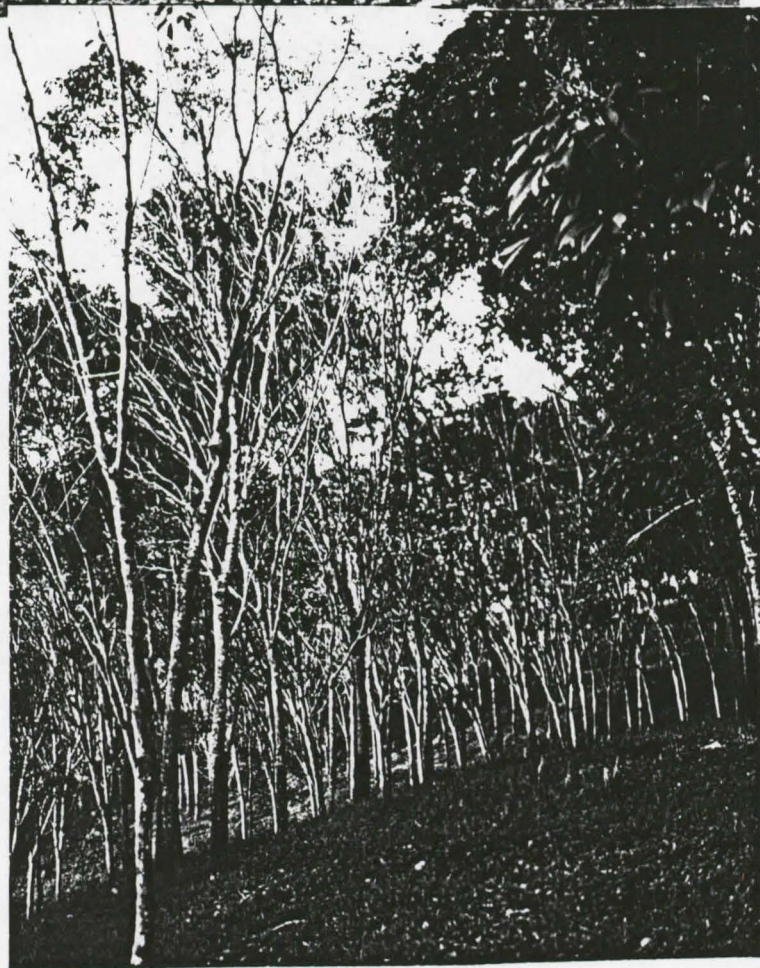


Photo 21 : severe attack of Colletotrichum on SRDP farmer's GT 1 plot.